

Correlation of Ontario Mathematics 2005 Curriculum to Addison Wesley Math Makes Sense 3

Number Sense and Numeration

Overall Expectations

By the end of Grade 3, students will:

- read, represent, compare, and order whole numbers to 1000, and use concrete materials to represent fractions and money amounts to \$10;
- demonstrate an understanding of magnitude by counting forward and backwards by various numbers and from various starting points;
- solve problems involving the addition and subtraction of single- and multi-digit whole numbers using a variety of strategies, and demonstrate an understanding of multiplication and division.

Students will:

Specific Expectations	<i>Addison Wesley Mathematics Makes Sense Grade 3, lessons</i>
<i>Quantity Relationships</i> represent, compare, and order whole numbers to 1000, using a variety of tools (e.g., base ten materials or drawings of them, number lines with increments of 100 or other appropriate amounts);	1.4, 1.5, 1.8, 1.10
read and print in words whole numbers to one hundred, using meaningful contexts (e.g., books, speed limit signs);	1.6
identify and represent the value of a digit in a number according to its position in a number (e.g., use base ten materials to show that the 3 in 324 represents 3 hundreds);	1.6, 1.8
compose and decompose three-digit numbers into hundreds, tens, and ones in a variety of ways, using concrete materials (e.g., use base ten materials to decompose 327 into 3 hundreds, 2 tens, and 7 ones, or into 2 hundreds, 12 tens, and 7 ones);	1.8, 1.11
round two-digit numbers to the nearest ten, in problems arising from real-life situations;	1.14

Specific Expectations	<i>Addison Wesley Mathematics Makes Sense Grade 3, lessons</i>
represent and explain, using concrete materials, the relationship among 1, 10, 100, and 1000, (e.g., use base ten materials to represent the relationship between a decade and a century, or a century and a millennium);	1.13
divide whole objects and sets of objects into equal parts, and identify the parts using fractional names (e.g., one half; three thirds; two fourths or two quarters), without using numbers in standard fractional notation;	8.1, 8.2, 8.3, 8.4
represent and describe the relationships between coins and bills up to \$10 (e.g., “There are eight quarters in a toonie and ten dimes in a loonie.”);	6.5
estimate, count, and represent (using the \$ symbol) the value of a collection of coins and bills with a maximum value of \$10;	6.6
solve problems that arise from real-life situations and that relate to the magnitude of whole numbers up to 1000.	1.13
<i>Counting</i> count forwards by 1’s, 2’s, 5’s and 10’s, and 100’s to 1000 from various starting points, and by 25’s to 1000 starting from multiples of 25, using a variety of tools and strategies (e.g., skip count with and without the aid of a calculator; skip count by 10’s using dimes);	1.2, 1.3, 1.9
count backwards by 2’s, 5’s, and 10’s from 100 using multiples of 2, 5, and 10 as starting points, and count backwards by 100’s from 1000 and any number less than 1000, using a variety of tools (e.g., number lines, calculators, coins) and strategies;	1.2, 1.3, 1.9
<i>Operational Sense</i> solve problems involving the addition and subtraction of two-digit numbers, using a variety of mental strategies (e.g., to add $37 + 26$, add the tens, add the ones, then combine the tens and the ones, like this: $30 + 20 = 50$, $7 + 6 = 13$, $50 + 13 = 63$);	2.7, 2.8
add and subtract three-digit numbers using concrete materials, student-generated algorithms, and standard algorithms;	2.11, 2.12, 2.13, 2.14

Specific Expectations	<i>Addison Wesley Mathematics Makes Sense Grade 3, lessons</i>
use estimation when solving problems involving addition and subtraction, to judge the reasonableness of a solution;	2.10, 2.13 with supporting TG note
add and subtract money amounts, using a variety of tools (e.g., currency manipulatives, drawings), to make simulated purchases and change for amounts up to \$10;	6.8, 6.9
relate multiplication of one-digit numbers and division by one-digit divisors to real-life situations, using a variety of tools and strategies (e.g., place objects in equal groups, use arrays, write repeated addition or subtraction sentences);	4.1, 4.2, 4.8, 4.9
multiply to 7×7 and divide to $49 \div 7$ using a variety of mental strategies (e.g., doubles, doubles plus another set, skip counting).	4.3, 4.6, 4.10

Measurement

Overall Expectations

By the end of Grade 3, students will:

- estimate, measure and record length, perimeter, area, mass, capacity, time and temperature using standard units;
- compare, describe, and order objects, using attributes measured in standard units.

Students will:

Specific Expectations	Addison Wesley Mathematics Makes Sense Grade 3, lessons:
<i>Attributes, Units, and Measurement Sense</i> estimate, measure and record lengths, heights and distances using standard units (i.e. centimetre, metre, kilometre);	9.1, 9.2, 9.3
draw items using a ruler, given specific lengths in centimetres;	9.1
read time using analogue clocks, to the nearest five minutes, and using digital clocks (e.g., 1:23 means twenty-three minutes after one o'clock), and represent in 12-hour notation;	6.2
estimate, read (i.e., using a thermometer), and record positive temperatures to the nearest degree Celsius (i.e., using a number line; using appropriate notation);	6.4
identify benchmarks for freezing, cold, cool, warm, hot and boiling temperatures as they relate to water and for cold, cool, warm, and hot temperatures as they relate to air (e.g., water freezes at 0°C; the air temperature on a warm day is about 20°C, but water at 20°C feels cool);	6.4
estimate, measure, and record the perimeter of two-dimensional shapes, through investigation using standard units;	9.4, 9.5
estimate, measure (i.e., using centimetre grid paper, arrays), and record area (e.g., if a row of 10 connecting cubes is approximately the width of a book, skip counting down the cover of the book with the row of cubes [i.e., counting 10, 20, 30, ...] is one way to determine the area of the book cover);	9.7, 9.8
choose benchmarks for a kilogram and a litre to help them perform measurement tasks;	6.10, 6.12

Specific Expectations	<i>Addison Wesley Mathematics Makes Sense Grade 3, lessons</i>
estimate, measure, and record the mass of objects (e.g., can of apple juice, bag of oranges, bag of sand), using the standard unit of the kilogram or parts of a kilogram (e.g., half, quarter);	6.12, 6.13 with supporting TG note
estimate, measure, and record the capacity of containers (e.g., juice can, milk bag), using the standard unit of the litre or parts of a litre (e.g., half, quarter);	6.10, 6.11 with supporting TG note
<i>Measurement Relationships</i> compare standard units of length (i.e., centimetre, metre, kilometre) (e.g., centimetres are smaller than metres), and select and justify the most appropriate standard unit to measure length;	9.2, 9.3
compare and order objects on the basis of linear measurements in centimetres and/or metres (e.g., compare a 3 cm object with a 5 cm object; compare a 50 cm object with a 1 m object) in problem solving contexts;	9.1, 9.2
compare and order various shapes by area, using congruent shapes (e.g., from a set of pattern blocks or Power Polygons) and grid paper for measuring;	9.6
describe, through investigation using grid paper, the relationship between the size of a unit of area and the number of units needed to cover a surface;	9.7
compare and order a collection of objects, using standard units of mass (i.e., kilogram) and/or capacity (i.e., litre);	6.10-6.13
solve problems involving the relationships between minutes and hours, hours and days, days and weeks, and weeks and years, using a variety of tools (e.g., clocks, calendars, calculators).	6.1, 6.2, 6.3

Geometry and Spatial Sense

Overall Expectations

By the end of Grade 3, students will:

- compare two-dimensional shapes and three-dimensional figures and sort them by their geometric properties;
- describe relationships between two-dimensional shapes, and between two-dimensional shapes and three-dimensional figures;
- identify and describe the locations and movements of shapes and objects.

Students will:

Specific Expectations	Addison Wesley Mathematics Makes Sense Grade 3, lessons:
<i>Geometric Properties</i> use a reference tool (e.g., paper corner, pattern blocks, a carpenter's square) to identify right angles and to describe angles as greater than, equal to or less than a right angle;	3.2
identify and compare various polygons (i.e., triangles, quadrilaterals, pentagons, hexagons, heptagons, octagons) and sort them by their geometric properties (i.e., number of sides; side lengths; number of interior angles; number of right angles);	3.1, 3.3, 3.4
compare various angles, using concrete materials and pictorial representations, and describe angles as <i>bigger than</i> , <i>smaller than</i> , or <i>about the same as</i> other angles (e.g., "Two of the angles on the red pattern block are bigger than all the angles on the green pattern block");	3.3, 3.4 with supporting TG note
compare and sort prisms and pyramids by geometric properties (i.e., number and shape of faces, number of edges, number of vertices) using concrete materials;	3.8, 3.9
construct rectangular prisms (e.g., using given paper nets; using Polydrons), and describe geometric properties (i.e., number and shape of faces, number of edges, number of vertices) of the prisms;	3.10
<i>Geometric Relationships</i> solve problems requiring the greatest or least number of two-dimensional shapes (e.g., pattern blocks) needed to compose a larger shape in a variety of ways (e.g., to cover an outline puzzle);	9.6, 9.7

Specific Expectations	<i>Addison Wesley Mathematics Makes Sense Grade 3, lessons</i>
explain the relationships between different types of quadrilaterals (e.g., a square is a rectangle because a square has four sides and four right angles; a rhombus is a parallelogram because opposite sides of a rhombus are parallel);	3.1, 3.3
identify and describe the two-dimensional shapes that can be found in a three-dimensional figure;	3.8
describe and name prisms and pyramids by the shape of their base (e.g., rectangular prism, square-based pyramid);	3.8
identify congruent two-dimensional shapes by manipulating and matching concrete materials (e.g., by translating, reflecting, or rotating pattern blocks);	3.5
<i>Location and Movement</i> describe movement from one location to another using a grid map (e.g., to get from the swings to the sandbox, move three squares to the right and two squares down);	7.1
identify flips, slides, and turns through investigation using concrete materials and physical motion, and name flips, slides, and turns as reflections, translations, and rotations (e.g., a slide to the right is a translation; a turn is a rotation);	7.2, 7.4, 7.5
complete and describe designs and pictures of images that have a vertical, horizontal or diagonal line of symmetry.	7.6

Patterning and Algebra

Overall Expectations

By the end of Grade 3, students will:

- describe, extend, and create a variety of numeric patterns and geometric patterns;
- demonstrate an understanding of equality between pairs of expressions, using addition and subtraction of one- and two-digit numbers.

Students will:

Specific Expectations	Addison Wesley Mathematics Makes Sense Grade 3, lessons:
<i>Patterns and Relationships</i> identify, extend, and create a repeating pattern involving two attributes (e.g., size, colour, orientation, number), using a variety of tools (e.g., pattern blocks, attribute blocks, drawings);	10.5
identify and describe, through investigation, number patterns involving addition, subtraction, and multiplication represented on a number line, on a calendar, and on a hundreds chart (e.g., the multiples of 9 appear diagonally in a hundreds chart);	1.1, 1.2, 1.3
extend repeating, growing, and shrinking number patterns;	10.1, 10.2
create a number pattern involving addition or subtraction, given a pattern represented on a number line or a pattern rule expressed in words;	10.1
represent simple geometric patterns using a number sequence, a number line, or a bar graph (e.g., the given growing pattern of toothpick squares can be represented numerically by the sequence 4, 7, 10, ..., which represents the number of toothpicks used to make each figure);	10.3
demonstrate, through investigation, an understanding that a pattern results from repeating an action (e.g., clapping, taking a step forward every second), repeating an operation (e.g., addition, subtraction), using a transformation (e.g., slide, flip, turn), or making some other repeated change to an attribute (e.g., colour, orientation);	1.1, 1.2, 1.3, 10.1, 10.2, 10.5, 10.6, 10.7, Unit 10 Technology Feature, page 395 with supporting TG note,

Specific Expectations	<i>Addison Wesley Mathematics Makes Sense Grade 3, lessons</i>
<i>Expressions and Equality</i> determine, through investigation, the inverse relationship between addition and subtraction (e.g., since $4 + 5 = 9$, then $9 - 5 = 4$; since $16 - 9 = 7$, then $7 + 9 = 16$);	2.4
determine, the missing number in equations involving the addition and subtraction of one- and two-digit numbers, using a variety of tools and strategies (e.g., modelling with concrete materials, using guess and check with and without the aid of a calculator);	2.5
identify, through investigation, the properties of zero and one in multiplication (i.e., any number multiplied by zero equals zero; any number multiplied by 1 equals the original number);	4.5
identify, through investigation, and use the associative property of addition to facilitate computation with whole numbers (e.g., “I know that $17 + 6$ equals $17 + 3 + 13$. This is easier to add in my head because I get $20 + 13 = 33$.”).	2.7

Data Management and Probability

Overall Expectations

By the end of Grade 3, students will:

- collect and organize categorical or discrete primary data and display the data using charts and graphs, including vertical and horizontal bar graphs, with labels ordered appropriately along horizontal axes, as needed;
- read, describe, and interpret primary data presented in charts and graphs, including vertical and horizontal bar graphs;
- predict and investigate the frequency of a specific outcome in a simple probability experiment.

Students will:

Specific Expectations	<i>Addison Wesley Mathematics Makes Sense Grade 3, lessons:</i>
<i>Collection and Organization of Data</i> demonstrate an ability to organize objects into categories, by sorting and classifying objects using two or more attributes simultaneously;	5.1, 5.2
collect data by conducting a simple survey about themselves, their environment, issues in their school or community, or content from another subject;	5.5, 5.9
collect and organize categorical or discrete primary data and display data in charts, tables, and graphs (including vertical and horizontal bar graphs), with appropriate titles and labels and with labels ordered appropriately along horizontal axes, as needed, using many-to-one correspondence (e.g., in a pictograph, one car sticker represents 3 cars; on a bar graph, one square represents 2 students);	5.5, 5.6
<i>Data Relationships</i> read primary data presented in charts, tables, and graphs (including vertical and horizontal bar graphs), then describe the data using comparative language, and describe the shape of the data (e.g., “Most of the data are at the high end.”, “All of the data values are different.”);	5.5, 5.8
interpret and draw conclusions from data presented in charts, tables, and graphs;	5.3, 5.4
demonstrate an understanding of mode (e.g., “The mode is the value that shows up most often on a graph.”), and identify the mode in a set of data;	5.3 with supporting TG note

Specific Expectations	<i>Addison Wesley Mathematics Makes Sense</i> Grade 3, lessons
<p><i>Probability</i> predict the frequency of an outcome in a simple probability experiment or game (e.g., “I predict that an even number will come up 5 times and an odd number will come up 5 times when I roll a number cube 10 times.”), then perform the experiment, and compare the results with the predictions, using mathematical language;</p>	11.2, 11.3
<p>demonstrate, through investigation, an understanding of fairness in a game and relate this to the occurrence of equally likely outcomes.</p>	11.5